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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/546,214	04/10/2000	Atsushi Watanabe	392.1680/JDH	3614

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EXAMINER

BUGG, GEORGE A

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 04/27/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/546,214

Applicant(s)

WATANABE ET AL.

Examiner

George A Bugg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The Examiner is including a countersigned copy of the 1449, which was filed on 07/02/2003. Applicant indicated in the Amendment of 11/18/03 that the IDS filed on 07/02/03 contained 10 references, however the 1449 only contains 9 references. Clarification is requested.

Response to Arguments

2. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

DETAILED ACTION

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,680,802 to Nishida et al., in view of US Patent No. 6,026,189 to Greenspan.

1. As for claim 1, disclosed by the title of the Nishida reference, an image processor for the detection of posture is taught. Figure 1, Element 3, discloses a camera, or image-capturing device. Further disclosed, in column 2, line 28 – column 3, line 13, Nishida teaches that input images are taken and identification parameters, as well as posture, or positioning processing is performed. Posture information, relates to the objects position, or orientation, and would depend entirely upon the position of the image-capturing device. Furthermore, Nishida discloses in column 2, lines 25-28 that the direction of the component parts must be known. Therefore, directional information relating to part and camera orientation is known. Nishida also teaches the matching process claimed by Applicant in column 2, line 28 – column 3, line 13, wherein images captured by the camera, are compared to stored images, to positively identify the object being imaged. Reference models are created by imaging a component and creating the identification parameters disclosed by Nishida. The fact that a matching process is utilized, to determine positive identification of a component, is itself a positive recitation that reference objects, or object of detection, have identical shapes. **Applicant has added the limitations that the object to be detected is a three-dimensional object, that a plurality of reference models are stored in memory, and that the image-capturing device operates in a plurality of angular rotation directions. In addition, the processor must perform the matching process based on an image of the**

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object of detection captured from among a plurality of three-dimensional objects, all at various angular rotation positions, and compared to a plurality of stored reference models. As previously stated, Nishida teaches the matching process claimed by Applicant in column 2, line 28 – column 3, line 13, wherein images captured by the camera, are compared to stored images, to positively identify the object being imaged. In addition the comparison process utilizes multiple stored images, which is synonymous with a plurality of reference models. While the Nishida reference is silent as to three-dimensional object detection, the Greenspan reference clearly teaches that object recognition (Title) takes place in three-dimensional images (column 1, lines 4-9), which further implies angular rotation, or varying positions of an object. Therefore, it would have been obvious to one of ordinary skill in the art to combine Nishida and Greenspan for the purpose of recognizing objects within a three-dimensional image, which overcomes the known limitations of prior art as stated by Greenspan in column 2, lines 59-61.

2. As for claims 2 and 3, reference models are created, and comprise captured image data, of a reference object, as described in column 2, line 28 – column 3, line 13. Furthermore, the need to train or teach the system, by utilizing reference models and images, for future component identification would be inherent.

3. As for claim 4, in column 2, lines 28-39, refers to the image-capturing process, in which Nishida discloses a process in which the profile of an object is captured. Profile refers to a two-dimensional image, and therefore teaches a two-dimensional camera.

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4. With regard to claim 5, Figure 1 shows the camera at a fixed location.
5. As for claim 6, Greenspan teaches three-dimensional object detection and recognition, in column 1, lines 4-9, and shows sensor views in Figures 10A and 11A.
6. As for claim 7, an apparatus, which is capable of obtaining three-dimensional data, is also capable of obtaining two-dimensional data. In addition, column 4, lines 8-18, of the Greenspan reference disclose known object parameters such as pose, object type and/or object location. Object location, or the calculating the distance between a camera and an object being captured is well known in the art.
7. With regard for claim 8, Figure 1 of the Nishida reference shows the camera attached to a robot.
8. With regard to claim 9, Greenspan teaches, in column 6, lines 41-48, that remote sensing and imaging is well known, and further, as shown by Figure 2, that the system is capable of processing on or off line.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George A Bugg whose telephone number is (703) 305-2329. The examiner can normally be reached on Monday-Thursday 9:00-6:30, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher S Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George A Bugg

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Examiner

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GAB

April 22, 2004


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600